3. Applicant respectfully traverses the restriction requirement because the Species are not independent and distinct.

The Office Action sets out Species I as Figures 4 and 5, and Species II as Figure 6. However, as disclosed in the specification, Figure 6 is one embodiment of the modulator 301 in Species I, in both Figures 4 and 5. Figure 7, as disclosed in the specification, is a mobile station which includes the embodiment of Figure 4 or 5. Thus, there is a disclosed relationship between the species and they are connected in design, operation, or effect. Therefore, Applicant respectfully submits that the Species are related and not patently distinct.

Furthermore, there has been no showing that a separate classification, a separate status in the art, or a different field of search would be required for the different Species.

At least for these reasons, Applicant respectfully submits that the species have not been shown to be independent and distinct, and respectfully requests reconsideration of the restriction requirement.

4. Applicant submits that claims 1-23 read on provisionally elected Species I, Figures 4 and 5.

Claim 1 is directed to a method for improving the quality of the output signal of an audio output stage, which comprises at least a modulator circuit (301), where a signal generated in the audio output stage, which signal is proportional to a previous digital input signal, is compared by means of feedback to the digital input signal (IN) of the audio output stage in order to generate a digital control signal (307), and the operation of the

modulator circuit (301) is controlled by means of said digital control signal (307).

The reference numbers clearly indicate that the features of claim 1 are found in Figures 4 and 5 and claim 1 clearly reads on Figures 4 and 5.

Claim 11 is directed to an audio output stage for improving the quality of an output signal, including a modulator circuit (301) for modulating a digital input signal (IN), an amplifier circuit (302) for amplifying the modulated signal, and a filter circuit (303) for filtering the modulated and amplified signal. The audio output stage further comprises a comparator circuit (305) for comparing the digital input signal (IN) and a signal generated in the output stage, which signal is proportional to a previous digital input signal, and for generating a digital control signal (307) for the modulator circuit (301).

Claim 11 includes subject matter similar to that of claim 1, and like claim 1, the reference numbers clearly indicate that the features of the claim are found in Figures 4 and 5. Claim 11 clearly reads on Figures 4 and 5.

Claim 18 is directed to a mobile station having an audio output stage (612) according to the embodiment of the invention. The audio output stage (612) includes a first means (613) to modulate a digital signal [corresponding to modulator circuit 301], a second means (614) to amplify a modulated signal [corresponding to amplifier circuit 302], a third means (615) to filter a modulated and amplified signal [corresponding to filter circuit 303], a fourth means (616) [corresponding to comparator circuit 305] to generate a digital control signal (307) by comparing the input signal (IN) to a signal generated in the

output stage, which signal is proportional to a previous digital input signal, and by processing the signal which is the result of the comparison in such a manner that it becomes a digital control signal suitable for the first means (613).

As such, claim 18 clearly reads on Figures 4 and 5.

Claim 20, as mentioned in the Amendment filed September 19, 2002, includes the features of claims 1 and 7, and therefore reads on Figures 4 and 5.

At least for these reasons, Applicant respectfully submits that claims 1-23 read on provisionally elected Species I, Figures 4 and 5.

Applicant submits the following in order to better explain the features of Applicant's invention in light of the cited prior art, in particular, Nielsen (US 6,297,692).

Nielsen seems to show a comparator as a part of a modulator. In the present application, there is a comparator shown as a separate block 503 in Figure 6, as part of the inner structure of modulator 301, in connection with the examples of the embodiments of the invention as described in the application text. Comparator 503 in Figure 6 of the present invention is part of a normal sigma-delta modulator, for generating the one bit output of the integrator 502. This is a very simple use of such a comparator.

Comparing Figure 10 of Nielsen to Figures 4, 5, and 6 of the present invention, it can be seen that the modulator/comparator concept is remarkably different. Nielsen's modulator/comparator concept appears to relate more closely to an analogue technique rather than digital, and there is no disclosure in Nielsen

related to such a digital concept. This is in sharp contrast to the present application where the modulator /comparator as described in the specification, and as claimed, relates to digital techniques.

Figure 6 of the present application shows a type of pulse density modulator 301 commonly called a sigma-delta modulator, outputting a pulse train suitable to be amplified in a switched amplifier stage 302. The example modulator circuit in Figure 6 employs a local feedback circuit 504 from the output OUT2 to the input IN, and the difference is integrated in the integrator 502, until it is of sufficient magnitude to activate the internal comparator 503. As a result, the feedback signal changes and the comparator is not activated again for a certain time depending on the amplitude of the input signal IN. Because of the action of the integrator 502, the operation is inherently very linear and the modulator itself needs no correction.

The intended scope of the invention, as stated in the disclosure of the embodiments, is to improve the quality of an amplifier that consists of at least an output stage and a modulator, so the inventive feedback comparator circuit 305 acts on the modulator circuit 301 in order to improve the audio quality of the output stage 302.

This corrective action takes place by arithmetically adding a difference signal 307 in the local feedback circuit 504.

The needed difference signal 307 is generated by the inventive comparator circuit 305, which includes elements 308-314, and receives as inputs the output of the amplifier, either before the filter as shown in Figure 4 or after the filter as shown in Figure 5.

A significant difference between Nielsen and the present invention relates to the input. In claim 1, the present invention describes the input signal to a digital input signal, such as is used in a mobile phone as shown in Figure 7. Applicant finds no disclosure in Nielsen related to discrete digital input samples. In fact, if used with an analogue input like Nielsen's, the present invention would probably show little improvement of the output signal. The present invention improves the output in the time between the consecutive digital input samples.

For all of the foregoing reasons, it is respectfully requested that the Restriction Requirement be removed and respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record, and are in proper form for allowance. Accordingly, favorable reconsideration and allowance is respectfully requested. Should any unresolved issues remain, the Examiner is invited to call Applicant's attorney at the telephone number indicated below.

The Commissioner is hereby authorized to charge payment for any fees associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,

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